

## CLAIMS

1. A method of measuring tension applied to an optical fiber being drawn, which comprises: measuring  
5 oscillation of the optical fiber when drawing into the optical fiber; subjecting a waveform of the oscillation to frequency analysis to obtain spectrum components; determining a fundamental oscillation frequency of the optical fiber based on peak frequencies contained in the  
10 spectrum components; and converting the fundamental oscillation frequency into the tension applied to the optical fiber being drawn,

characterized in that the determination of the fundamental oscillation frequency of the optical fiber is  
15 performed through the steps comprising:

specifying, as a harmonic oscillation series group, a group of peak frequencies containing at least two peak frequencies, in which an interval between a frequency zero (0) and a first peak frequency, an interval between  
20 the first peak frequency and a second peak frequency, ..., and an interval between an (n-1)th peak frequency and an nth peak frequency (in which n is a natural number) are equal to each other, from among a plurality of peak frequencies contained in the spectrum components; and  
25 determining the fundamental oscillation

frequency of the optical fiber based on the respective peak frequencies contained in the specified harmonic oscillation series group.

5           2. The method of measuring tension applied to an optical fiber being drawn according to Claim 1, characterized in that, when specifying the harmonic oscillation series group, autocorrelation of the spectrum components is calculated, thereby the peak frequencies  
10 that are in the harmonic oscillation series relation at equal intervals are emphasized.

          3. The method of measuring tension applied to an optical fiber being drawn according to Claim 2,  
15 characterized in that, when emphasizing the peak frequencies that are in the harmonic oscillation series relation at equal intervals by calculating autocorrelation of the spectrum components, data obtained after the calculation of the autocorrelation are smoothed.